

CLAIMS

We claim:

1. A method for controlling an electrotherapeutic device configured to provide a defibrillation shock or pacing stimuli to a patient, comprising:
 - obtaining and analyzing physical parameters of the patient to determine whether the patient has a heart condition for which an appropriate treatment is either a defibrillation shock or pacing stimuli;
 - automatically determining a magnitude at which to supply the pacing stimuli, based, at least in part, upon the physical parameters, if the appropriate treatment is pacing stimuli; and
 - supplying the pacing stimuli to the patient at the determined magnitude and at a pacing rate.
2. The method of claim 1, wherein the step of obtaining and analyzing physical parameters of the patient comprises:
 - comparing the physical parameters to one or more predetermined parameters indicating severe bradycardia.
3. The method of claim 1, wherein the step of obtaining and analyzing physical parameters of the patient comprises:
 - comparing the physical parameters to one or more predetermined parameters indicating ventricular standstill.
4. The method of claim 1, wherein the step of obtaining and analyzing physical parameters of the patient comprises:
 - comparing the physical parameters to one or more predetermined parameters indicating second degree atrioventricular block.

5. The method of claim 1, wherein the step of obtaining and analyzing physical parameters of the patient comprises:
 - comparing the physical parameters to one or more predetermined parameter indicating third degree atrioventricular block.
6. The method of claim 1, wherein the step of obtaining and analyzing physical parameters of the patient comprises:
 - comparing the physical parameters to one or more predetermined parameter indicating low cardiac output.
7. The method of claim 1, wherein the step of obtaining and analyzing comprises:
 - determining whether a defibrillation shock has been delivered to the patient within a predetermined period of time.
8. The method of claim 1, further comprising:
 - obtaining and analyzing updated patient physical parameters.
9. The method of claim 8, further comprising:
 - automatically adjusting the magnitude and pacing rate to an updated magnitude and updated pacing rate based, in part, on the updated physical parameters;
 - and
 - supplying the pacing stimuli to the patient at the updated magnitude and at the updated pacing rate.
10. The method of claim 8, further comprising:
 - identifying an indication to cease the pacing stimuli, based, in part, on the updated physical parameters; and
 - terminating the discharging of the energy device before the determined time, if an indication to cease the pacing stimuli is indicated.
11. The method of claim 10, wherein the step of identifying an indication to cease the pacing includes identifying no electrical capture.

12. The method of claim 10, wherein the step of identifying an indication to cease pacing includes identifying no mechanical capture.
13. The method of claim 10, wherein the step of identifying an indication to cease pacing includes identifying failure in improvement of cardiac output.
14. The method of claim 10, wherein the step of identifying an indication to cease pacing includes identifying adequate spontaneous circulation.
15. The method of claim 1 wherein the step of obtaining and analyzing physical parameters of the patient to determine whether the patient has a heart condition appropriately treated with a defibrillation shock or pacing stimuli includes determining whether the patient has a heart condition appropriately treated with a non-electrotherapeutic treatment.
16. The method of claim 15, further comprising:
indicating to a user that a non-electrotherapeutic treatment is needed.
17. The method of claim 16, wherein the step of indicating to a care provider that non-electrotherapeutic treatment is needed includes prompting the user to provide CPR therapy to the patient.
18. The method of claim 16, wherein the step of indicating to a care provider that non-electrotherapeutic treatment is needed includes prompting the user to provide drug therapy to the patient.
19. The method of claim 16, wherein the step of indicating to a care provider that non-electrotherapeutic treatment is needed includes prompting the user to provide oxygen therapy to the patient.
20. The method of claim 16, wherein the step of indicating to a care provider that non-electrotherapeutic treatment is needed includes prompting the user to monitor the patient's SaO₂ level.

21. The method of claim 16, wherein the step of indicating to a care provider that non-electrotherapeutic treatment is needed includes prompting the user to monitor the patient's blood pressure.
22. The method of claim 16, wherein the step of indicating to a care provider that non-electrotherapeutic treatment is needed includes prompting the user to monitor the patient's end tidal CO₂ level.
23. The method of claim 16, further comprising:
determining a physical status based, in part, on the patient's physical parameters;
and
indicating the physical status to a user.
24. An external medical device for supplying electroshock therapy to a patient comprising:
a plurality of electrodes configured to deliver a defibrillation shock or pacing stimuli to, and sense one or more physical parameters associated with, the patient;
an energy storage device coupled to the plurality of electrodes and configured to store a charge; and
a controller coupled to the plurality of electrodes and the energy storage device, and configured to:
obtain and analyze physical parameters of the patient;
automatically determine a magnitude at which to supply the pacing stimuli, based, at least in part, upon the physical parameters; and
supply the pacing stimuli to the patient at the determined magnitude and at a pacing rate.

25. The device of claim 24, wherein the controller is further configured to:
 - obtain and analyze updated patient physical parameters;
 - automatically adjust the magnitude and pacing rate to an updated magnitude and updated pacing rate based, in part, on the updated physical parameters; and
 - supply pacing stimuli to the patient at the updated magnitude and at the updated rate.
26. The device of claim 25, wherein the controller is further configured to:
 - identify an indication to cease the pacing stimuli, based in part on the updated patient physical parameters; and
 - terminate the discharge of the energy device before the predetermined time, if an indication to cease the pacing stimuli is indicated.
27. The device of claim 24, wherein the controller is further configured to:
 - indicate to a care provider that further treatment is needed.
28. The device of claim 24, wherein the controller is further configured to:
 - determine a physical status based, in part, on the patient's physical parameters;
 - and
 - indicate the physical status to a user.
29. The device of claim 24, further comprising:
 - a user interface in communication with the controller.

30. An external medical device for supplying electroshock therapy to a patient comprising:

- a plurality of electrodes configured to deliver a defibrillation shock or pacing stimuli to, and sense one or more physical parameters associated with, the patient;

- an energy storage device coupled to the plurality of electrodes and configured to store a charge; and

- a controller coupled to the plurality of electrodes and the energy storage device, and configured to:

 - obtain and analyze physical parameters of the patient to determine whether the patient has a heart condition for which an appropriate treatment is either a defibrillation shock or pacing stimuli;

 - automatically determine a magnitude at which to supply the pacing stimuli, based, at least in part, upon the physical parameters; and

 - supply the pacing stimuli to the patient at the determined magnitude and at a pacing rate.

31. A method for controlling an electrotherapeutic device configured to provide a defibrillation shock or pacing stimuli to a patient, comprising:

- obtaining and analyzing physical parameters of the patient to determine whether the patient has a heart condition for which an appropriate treatment is either a defibrillation shock or pacing stimuli;

- automatically determining a magnitude at which to supply the pacing stimuli, based, at least in part, on whether the device previously provided a defibrillation shock to the patient, if the appropriate treatment is pacing stimuli; and

- supplying the pacing stimuli to the patient at the determined magnitude and at a pacing rate.